

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)	
)	
Carrier Current Systems,)	ET Docket No. 03-104
Including Broadband)	
over Power Line Systems)	
)	
Amendment of Part 15 regarding)		
new requirements and)	
measurement guidelines for)	
Access Broadband over Power)	
Line Systems)	ET Docket No. 04-37

COMMENTS OF PPL TELCOM, LLC

I. Introduction and Background

PPL Telcom, LLC ("PPL Telcom") pursuant to the rules and regulations of the Federal Communications Commission (the "FCC" or the "Commission"), 47 C.F.R. §§ 1.415 and 1.419, submits these comments in response to the Commission's Notice of Proposed Rule Making adopted on February 12, 2004 and released on February 23, 2004.

PPL Telcom is a subsidiary of PPL Corporation located in Allentown, Pennsylvania. PPL Telcom is primarily a *"carrier's carrier"* of broadband fiber-optic services for high-speed data transmission providing service principally to the markets of eastern and central Pennsylvania.

Another subsidiary of PPL Corporation, PPL Electric Utilities Corporation ("PPL Electric") owns almost 38,000 miles of interconnected electric transmission and distribution power lines. PPL Electric provides retail electric service to approximately 1.3 million customers within its service territory consisting of roughly 10,000 square miles in central eastern Pennsylvania. PPL Telcom and PPL Electric are members of the United Telecommunications Council and PPL Telcom is a member of the United Telecommunications Council's United PowerLine Council ("UPLC").¹

II. PPL Telcom's Involvement with Broadband Over Power Lines ("BPL")

PPL Electric and PPL Telcom have been actively evaluating BPL technology and services since late 1999. In late 2001, PPL Electric performed characterization testing and began construction of a technical trial of BPL in Emmaus, Pennsylvania. During 2002, BPL technical trials were expanded to include multiple technologies and PPL Electric service locations. Results of these technical

¹ UPLC - United Power Line Communications Council is a sub-organization within the United Telecommunications Council (UTC) organization.

trials indicated that BPL was viable for both access and in-home high-speed data communications.

During 2003 technical trials transitioned to market trials. Today PPL Telcom's BPL service is available to several thousand homes in the Lehigh Valley area of Pennsylvania.

Based upon the successful results of BPL technical and market trials, PPL Telcom proceeded with the next phase of its deployment plan in 2004

III. Comments to Questions and Issues Raised in NPRM

A. Definition of Access BPL

PPL Telcom believes that the definition of Access BPL used in the NPRM, i.e. "A carrier current system that transmits radio frequency energy by conduction over electric power lines owned, operated or controlled by and electric service provider. The electric power lines may be aerial or underground." Is overly inclusive. This definition includes present narrow band PLC (power line carrier) systems used by utilities for protection and control. This definition also may be interpreted to exclude BPL providers that are not providers of electric service. Alternatively, PPL Telcom suggests the adoption of a definition for

Access BPL which reads, "A carrier current system that transmits high frequency (>1 MHz) radio frequency energy by conduction over electric power lines owned, operated, or controlled by and electric service provider for the purpose of delivering broadband data services. The electric power lines may be aerial or underground, but do not include power lines within customer premises or in riser conduit within buildings. Access BPL does not include power line carrier systems as defined in Section 15.113 of the Commission's rules."

B. Access BPL Emission Limits

PPL Telcom supports the FCC decision to apply existing Part 15 emission limits to Access BPL in the future and to grandfather BPL equipment already deployed under the present Part 15 emission limits. PPL Telcom further encourages the FCC to revisit raising emission limits soon after the industry has demonstrated that the interference potential of BPL deployments is marginal and that any interference to nearby licensed spectrum users can be mitigated. PPL Telcom also believes that any cumulative effect of BPL emissions

will be significantly reduced by a number of practical factors including:

- 1) Much of PPL Telcom's existing BPL equipment is operated at power levels that produce emissions significantly below present FCC Part 15 maximum emission levels.
- 2) BPL equipment within the same network operates at different frequencies, therefore, reducing the cumulative effect at any given frequency.
- 3) Cumulative emissions are reduced because BPL equipment is deployed in different orientations on the power lines and the polarization of emissions will be random.
- 4) Underground and overhead BPL equipment will have significantly different emission characteristics; and
- 5) BPL equipment operating on the same frequency will have differing phase displacements

Models of potential cumulative BPL interference must account for these mitigating factors.

C. Access BPL Operational Requirements

A. Interference reporting and mitigation:

PPL Telcom supports safeguards and recommends reciprocal obligation of good faith on both authorized spectrum users and BPL operators to promptly resolve instances of harmful interference and discourage frivolous interference complaints. Since initiating BPL operations in February, 2002, PPL Telcom has experienced three informal interference complaints. All three were addressed in a timely manner by relocating the BPL frequencies of nearby equipment to spectrum not allocated to the authorized users. In these instances we were able to relocate the frequencies of our equipment remotely from our network operations center. Two of the complaints have been resolved and we are continuing to investigate the third complainant's circumstances following his recent report indicating some continued lower-level interference.

B. BPL equipment location and frequency
utilization database:

PPL Telcom supports the assertion that BPL is more controlled than other unlicensed operations and PPL Telcom also supports the development of a BPL

database operated and managed by the United Telecom Council (UTC). However, PPL Telecom opposes unfettered public disclosure of the information contained in such a database for the following reasons:

1. Disclosing precise locations and operating frequencies used by BPL equipment would make it easier for malefactors to damage equipment or deliberately interfere with BPL communications. In the near future, BPL may be used for electric utility SCADA communications. Public disclosure of BPL locations and operating frequencies could expose electric utility operations to risk through deliberate degradation or interruptions of the SCADA communications carried by BPL.
2. BPL broadband competitors would obtain an unfair advantage in the marketplace through access to a public database. A public database would reveal growth plans and marketing strategies. DSL and broadband cable providers are not required to publicly

disclose the precise location of their infrastructure or its operational characteristics. Therefore, BPL would be operating at a competitive disadvantage from its very beginnings.

A. Equipment authorization and verification:

PPL Telcom supports continued verification of BPL equipment. This process is consistent with the procedures used for other unlicensed services and results in protections for authorized users while reducing additional testing costs and delays for potential BPL service providers.

Interference Testing and Measurement:

B. PPL Telcom recommends emission measurements be performed at both 1 meter as provided in the current rules and at the height of the power line conductor in order to most accurately assess the actual emission levels of the equipment under test. The correction factor approach noted in the NPRM would not reliably reflect the actual radiated emission levels due to the myriad power line and BPL equipment

configurations in actual deployment (single phase, three phase, horizontal phase orientation, vertical phase orientation, standard phase spacing, spacer cable construction, close phase spacing, etc.), PPL Telcom encourages the Commission not to rely solely on a one meter measurement with an unreliable applied correction factor

Conclusion

PPL Telcom supports the application of existing FCC Part 15 radiated compliance rules to govern BPL access. Future increases in radiated emission limits for BPL access equipment may be warranted as indicated by demonstrated BPL deployment experience and ongoing technological developments.

PPL Telcom appreciates the Commission's encouragement of BPL technology through this NPRM. PPL Telcom looks forward to working with the Commission and other interested stakeholders in the development and deployment of this new technology.

Respectfully submitted,

PPL Telcom, LLC

By: _____

Mel R. Jiganti
Counsel for
PPL Telcom, LLC

May 4, 2004

g:\steno\ael\mrj\fcc nprm ppl comments 050304 v3.doc

05/04/04 8:10 PM

Deleted: 05/04/04 4:49 PM